

Attorney Docket No. 824/40746



23646

PATENT TRADEMARK OFFICE

English-language Translation of
German Application No. 202 10 571.7

DEVICE FOR FASTENING A GUIDE RAIL TO A WALL

[0001] The present invention relates to a device for fastening a guide rail to a wall, particularly a rear wall of a slide guide, according to the preamble of Claim 1.

[0002] From German Patent Document DE 38 32 701, a fastening arrangement for a guide rail of a slide guide is known, in which a guide rail has a folded-back lug at the rearward end, which lug is provided with detent teeth at the lateral edges. This lug can be inserted into a holding fitting which can be fixed to the rear wall of a piece of furniture. The holding fitting has two web sections between which a receiving opening is provided for inserting the lug. On the web sections, detent teeth are again provided which can be connected in a resilient manner with the detent teeth of the lug. It is a disadvantage of this known fastening arrangement that the precision of the guidance of the lug is limited, particularly since also an only step-by-step adjustment can be carried out by means of the detent teeth. In addition, the stability of the guide is limited as a result of the bendable web sections because only two guiding surfaces are present. Finally, it is also disadvantageous that the lug is pulled out of the bendable body of the fitting during an adjusting movement out of the opening of the fitting.

[0003] It is therefore an object of the present invention to improve the fastening of a guide rail on a fitting in that an unintentional detachment of the guide rail from the fitting is avoided and the possibility of adjusting the position of the guide rail relative to the fitting is improved.

[0004] This object is achieved by means of a device for fastening a guide rail on a wall having the characteristics of Claim 1.

[0005] According to the invention, the fitting has a side wall spaced away from the guiding section, and the guide rail can be displaced continuously between a first end position, in which the guide rail rests laterally against the guiding section of the fitting, and a second end position, in which the guide rail rests against the side wall. As a result of the continuous adjustability, a finer adjustment of the guide rail on the fitting can be achieved. Furthermore, as a result of the side wall situated opposite the guiding section, it is prevented that the guide rail may accidentally be removed from the fitting, in which case the side wall represents a visual as well as a stable protection against a removal of the holding device from the fitting. In this case, the web-shaped holding device can be moved continuously between the two end positions, in which case, greater forces can also be absorbed by the mutually connected walls of the fitting. In addition, as a result of the side wall, an unintentional pulling-out of the guide rail is avoided.

[0006] According to a preferred embodiment, the web-shaped holding device is held in a clamping manner in the elastic guiding section. In this case, the clamping can take place in the vertical as well as in the horizontal direction, preferably an edge-type clamping taking place which ensures a good guidance.

[0007] If the distance between the side wall and the guiding section of the fitting is smaller than the length of the web-shaped holding device of the guide rail, the guide rail can be removed from the fitting only by a combined swivelling and displacing movement. However, in the case of a lateral adjustment, it is prevented that the guide rail is accidentally removed from the fitting, because the side wall serves as a stop.

[0008] The web-shaped holding device preferably has two webs which can be inserted into one receiving device respectively formed on the guiding section. As a result of the construction of two webs, the surface on the fitting used for the guidance is enlarged because a clearance exists between the webs in which guiding elements of the fitting can engage. This improves the guidance of the web-shaped holding device and also prevents a rotation of the holding device within the fitting. In this case, the web-shaped holding device may be guided in the area of the guiding section and adjacent to the guiding section essentially in a form-locking manner on the upper and lower side wall of the fitting. In addition, at least one web may be provided within the guiding section, which web rests on the web-shaped holding device for the guidance and can also provide a certain clamping. By means of such webs, the holding device can be guided along several edges, so that a particularly precisely fitting movement is permitted within the receiving device. A profiling is preferably provided on the web-shaped holding device, at least one web resting by means of two edges or sides against the profiling, so that a guidance can take place into a predetermined moving direction.

[0009] Preferably plugs are shaped onto the rear wall of the fitting, which plugs can be hung into openings at a wall. As a result, the fitting can be mounted in a simple manner on a piece of furniture. For a secure fastening, the plugs have a flange section, in which case a wall can be inserted between the flange section and the rear wall of the fitting.

[00010] In the following, the invention will be explained in greater detail by means of an embodiment with reference to the attached drawings.

- [00011]** Figure 1 is a perspective view of the fitting parts of a slide guide with an embodiment of a fastening device according to the invention;
- [00012]** Figures 2A, 2B and 2C are perspective views of the fastening device of Figure 1 during the mounting;
- [00013]** Figures 3A, 3B and 3C are sectional top views of the fastening device of Figure 1 in different mounting positions;
- [00014]** Figures 4A, 4B and 4C are perspective views of the fastening device of Figure 1 during the mounting on a wall;
- [00015]** Figures 5A, 5B and 5C are sectional top views of the fastening device during the mounting similar to Figures 4A, 4B and 4C;
- [00016]** Figures 6A, 6B are two views of the fitting of the fastening device according to the invention; and
- [00017]** Figure 7 is an enlarged frontal view of the fastening device in the mounted condition.
- [00018]** A wall 1, for example, a rear wall of a piece of furniture, is used for fastening a guide rail 3 which is held by a fitting 2. The guide rail 3 is fastened in a lateral area to a wall, which is not shown, or to the front of a piece of furniture, or to a front-side frame 5 of a piece of furniture, and therefore has a stationary construction. Another rail 4, which carries a drawer, which is not shown, is movably arranged on the guide rail 3.
- [00019]** As illustrated in Figure 2A, the connection of the guide rail 3 with the fitting 2 takes place by way of a web-shaped holding device 6 which is shaped to the face of the guide rail 3. The guide rail 3 has a C-shaped construction and comprises a center section 30 on which an upper leg 31 with a frontal edge 32 as well as a lower leg 33 are constructed. In a known manner, roll bodies may be provided on the guide rail 30. The web-shaped holding device 6 is shaped to the center section 30 and has an upper web 7 and a lower web 8. A recess 9 is constructed between the webs 7 and 8.
- [00020]** The fitting 2 has an essentially box-shaped construction and comprises a rearward wall 22, which is arranged between an upper wall 20 and a lower wall 21. The terms "rearward" and "forward" refer to the installing situation illustrated in Figure 1 in the case of a slide guidance. In addition, a forward wall 23 is provided in the area of the guiding section 26, which forward wall 23 connects the upper side wall 20 with the lower side wall 21.

- [00021]** On the forward wall 23, inwardly oriented webs 25 are provided which project into the guiding section 26.
- [00022]** In addition, the fitting 2 comprises a flange section 27 which extends the rearward wall 22. A plug 29 is molded to the flange section 27, which plug 29 has a holding section 18 on a forward area. A wall 1 can be inserted between the holding section 18 and the flange section 27. The flange section 27 is reinforced by way of a rib 28 connected with the upper side wall 20.
- [00023]** For mounting the guide rail 3 on the fitting, the web-shaped holding device is first pushed diagonally into the guiding section 26, if this is at all possible because of the diagonal position of the web-shaped holding device 6 (Figure 2B). As soon as the holding device 6 is locked inside the guiding section 26, the holding device with the guide rail must be swivelled past the side wall 24, so that the web-shaped holding device 6 is aligned parallel with respect to the rearward wall 22 and the forward wall 23. In this case, the webs 7 and 8 engage in the guiding section 26.
- [00024]** As illustrated in Figures 3A to 3C, the mounted guide rail can be displaced in the horizontal direction between a first end position, in which the guide rail 3 impacts by means of a leg on the forward wall 23 (Figure 3C), to a second end position, in which the center section 30 of the guide rail 3 rests on the side wall 24 (Figure 3A). In the second end position, the forward section of the holding device 6 is still arranged inside the guiding section 26, so that a movement of the guide rail 3 in the longitudinal direction is prevented. The guide rail 3 is without any swivelling movement captively held on the fitting 2.
- [00025]** So that the insertion of the guide rail 3 can take place in a somewhat more smoothly running manner, the rearward wall 22 does not have a continuous construction, so that a recess 19 exists between the side wall 24 and the rearward wall 22. As a result, the side wall 24 has a somewhat more flexible construction and, during the mounting, can also be pressed slightly toward the rear, so that the web-shaped holding device 6 can be inserted more easily into the guiding section 26.

[00026] Figures 4A to 4C as well as 5A to 5C show the mounting of the fitting 2 on a wall 1. The guide rail 3 is connected with fitting 2 already during the mounting. It is also possible to mount the fitting 2 on the wall 1 beforehand and only then fasten the web-shaped holding device 6 on the fitting 2.

[00027] The plug 29 is fitted with the flange section 18 into an upper opening 10, and a lower plug 29 is fitted into an opening 11 in the wall 1 and is subsequently swivelled, so that the rearward wall 22 rests against the wall 1. In this position, the wall 1 is held between the flange section 18 and the wall 22, and the plug 29 cannot be moved by a pulling movement in the direction of the longitudinal axis of the guide rail 3. The wall 1 shown in Figures 4A to 5C is of a narrow thickness. When walls of a larger thickness are used, the length of the plug 29 and possibly the construction of the holding section 18 or the diameter of the openings 10, 11 have to be adapted correspondingly in order to fit the plugs 29 into the openings 10, 11.

[00028] Figures 6A and 6B show the fitting 2 before the mounting. The guiding section 26 is divided into individual chambers by means of the webs 25, the webs 25 not extending to the rearward wall 22. In addition, the guiding section is bounded by the side walls 20 and 21 as well as by the rearward wall 22 and the forward wall 23.

[00029] As illustrated in Figure 7, the guiding section 26 is designed for a largely form-locking guidance of the webs 7 and 8 of the web-shaped holding device 6. The webs 7 and 8 each have a profiling 17 which, in the cross-sectional view, represents a curvatures pointing to the forward wall 23. Adjacent to the profiling 17, the web 7 and 8, in each case, has a flat construction and rests against the rearward wall 22. On the opposite side, a portion of the web 7 and 8 rests against the face 25 and prevents that the webs 7 or 8 are moved in the direction of the axis of the guide rail 3. Furthermore, it is achieved by means of the profiling 17 that the movement of the webs 7 and 8 is in each case limited toward the center of the guiding section 26, the webs 25 resting on the profiling 17 by means of an edge. As a result of this limitation by means of the webs 25, it is also avoided that the web-shaped holding device 6 is rotated about an axis perpendicular to the sheet plane of Figure 7.

[00030] In the illustrated embodiment, the web-shaped holding device 6 has two webs 7 and 8. Naturally, it is also possible to provide only one web or more than two webs.

[00031] The profiling 17 is also used for reinforcing the web-shaped holding device 6. Should the profiling 17 be eliminated, it would make sense to also eliminate the recess 9 and to modify the webs 7 and 8, so that the holding device 6 receives the required stability. Then, it may also be expedient to change the position and shape of the webs 25 in order to achieve the above-described purpose.

[00032] The fitting 2 consists of a plastic material, and the guide rail 3 with the web-shaped holding device 6 is made of metal. However, other materials may also be used.